

## Concept

- Cost price (C.P): The price, at which an article is purchased, is called its cost price
- Selling price (S.P): The price, at which an article is sold, is called its selling price
- Profit(Gain): If S.P is greater than C.P, the seller is said to have a profit or gain
- Loss: If S.P is less than C.P, the seller is said to have incurred a loss
  - Loss or gain is always reckoned on C.P
  - If an article is sold at a gain of say 35%, then S. P=135% of C.P
  - If an article is sold at a loss of say, 35% then S.P =65% of C.P

### Important Formulae

$$1. \text{ Gain} = (\text{S.P}) - (\text{C.P})$$

$$2. \text{ Loss} = (\text{C.P}) - (\text{S.P})$$

$$3. \text{ Gain \%} = \frac{\text{Gain} \times 100}{\text{C.P.}}$$

$$4. \text{ Loss} = \frac{\text{Loss} \times 100}{\text{C.P.}}$$

$$5. \text{ S.P} = \frac{100 + \text{Gain\%}}{100} \times \text{C.P}$$

$$6. \text{ S.P} = \frac{100 - \text{Loss\%}}{100} \times \text{C.P}$$

$$7. \text{ C.P} = \frac{100}{100 + \text{Gain\%}} \times \text{S.P}$$

$$8. \text{ C.P} = \frac{100}{100 - \text{Loss\%}} \times \text{S.P}$$

9. If a trader professes to sell his goods at cost price, but uses false weights, then

$$10. \text{ Gain \%} = \left[ \frac{\text{Error}}{(\text{True value}) - (\text{Error})} \times 100 \right] \%$$

11. When a person sells two similar items, one at a gain of say x%, and the other at a loss of x%, then the seller always incurs a loss given by:

$$\text{Loss} = \left[ \frac{\text{Common Loss and Gain \%}}{10} \right]^2 = (x/10)^2$$



14. Mukesh purchased 10 kg of wheat at Rs.60 per kg and 10 kg of wheat at Rs.40 per kg. He mixed the two quantities of wheat for selling. At what rate should it be sold to gain 20%?  
A. 30                      B.40                      C.50                      **D.60**
15. On a Rs. 10,000 payment order a person has choice between three successive discounts of 10%,10% and 30% and three successive discounts of 40%,5% and 5%. By choosing the better one, he can save:  
A. 200                      **B.255**                      C.400                      D.433
16. The cost price of 2 dozen bananas is Rs.32. After selling 18 bananas at Rs.12 per dozen, the shopkeeper reduced the rate as Rs.4 per dozen. The loss percent is:  
A. 25.%                      B.32.4%                      C.36.50%                      **D.37.50%**
17. A sold a watch to B at 20% gain and B sold to C at a loss of 10%. If C bought the watch for Rs.216.at what price did A purchase it?  
A. **200**                      B.216                      C.250                      D.176
18. An uneducated retailer marks all his goods at 50% above the cost price and thinking that he will still 25% profit, offers a discount of 25% on the marked price. What is the actual gain percent?  
**A. 12.5%**                      B.15%                      C.20%                      D.25%
19. By using a false weight, a dealer defrauds his customers by 5% in purchasing and 5% in selling. His gain percent is:  
A. 10%                      B.2.5%                      **C.10.52%**                      D. None of these
20. On reducing the marked price of an article by 32, a shopkeeper gains 15%. If the cost price of the article be 320 and it is sold at the marked price, what will be the gain percent?  
A. 10%                      B.20%                      **C.25%**                      D. None of these
21. By selling 33 m of cloth Ramesh gained the cost price of 11 m. The gain percent is:  
A. 25%                      B.20%                      C.15%                      **D. 33.33%**
22. On selling an article at Rs.1060, the gain is 20% more than the loss incurred on selling it at Rs.950. In order to gain 20%, the selling price will be:  
A. 980                      B.1080                      **C.1200**                      D.1500
23. By selling a tape-recorder for Rs.950, I lose 5%. What percent shall I gain by selling it for Rs.1040?  
**A. 4%**                      B.5%                      C.4.5%                      D.9%
24. The marked price of an article is Rs.200. A discount of 12.5% is allowed on the marked price and a profit of 25% is made. The cost price of the article is:  
A. 120                      **B.140**                      C.160                      D.175
25. A shopkeeper gives two successive discounts on an article marked Rs.450. The first discount given is 10%, If the customer pays Rs. 344.25 for the article, the second discount given is:  
A. 10%                      B.12%                      C.14%                      **D.15%**

## Further exercise-----01

1. A merchant has 1000 kg of sugar, part of which he sells at 8% profit and the rest at 18% profit. He gains 14% on the whole. The quantity sold at 18% profit is:  
A. 560 kg                                      **B.600 kg**                                      C.400 kg                                      D.640 kg
2. Oranges are bought at 5 for Rs.10 and sold at 6 for Rs.15. His gain percent is:  
A. 50%                                      B.40%                                      C.35%                                      **D.25%**
3. If selling price is doubled, the profit triples. The profit percent is:  
A. 67%                                      **B.100%**                                      C.105%                                      D.120%
4. A man sells an article at a loss of 10%. Had he bought it at 20% less and sold it for Rs.55 more he could have gained 40%. What is the cost price of the article?  
A. Rs. 200                                      B. Rs. 225                                      **C.Rs.250**                                      D. Rs.300
5. The profit earned after selling an article for Rs.625 is the same as loss incurred after selling the article for Rs.435. The cost of the article is:  
A. Rs.520                                      **B.530**                                      C.540                                      D.550
6. Nita blends two varieties of tea one costing Rs.180 per kg and another costing Rs.200 per kg in the ratio 5:3. If she sells the blended variety at Rs.210 per kg, then her gain is:  
A. 10%                                      B.11%                                      **C.12%**                                      D.13%
7. An article passing through two hands, is sold at a profit of 38% at the original cost price. If the first dealer makes a profit of 20%, then the profit percent made by the second is:  
A. 5%                                      B.10%                                      C.12%                                      **D.15%**
8. A man sells tea at 10% profit and uses a weight which is 20% less than the actual measure. His gain percent is:  
A. 30%                                      B.35%                                      **C.37.5%**                                      D.50%
9. A shopkeeper marks his goods to gain 35%. But, he allows 10% discount for cash payment. His profit percent is:  
A. 13.5%                                      **B.21.5%**                                      C.25%                                      D.31.5%
10. By selling a chair for Rs.572, a man gains 30%. The cost price of the chair is:  
A. Rs. 340                                      B.Rs. 400                                      **C.Rs. 440**                                      D.Rs.500
11. By selling 33 m of cloth Ramesh gained the cost price of 11 m. The gain percent is:  
A. 10%                                      B.20%                                      C.25%                                      **D. None of these**
12. Arun purchased a T.V set at 20% discount. If he gets a discount of 25%, he saves Rs.1800. For how much does he purchase the T.V. set?  
A. 33,000                                      B.31200                                      **C.28800**                                      D.27000
13. On a Rs. 10,000 payment order a person has choice between three successive discounts of 10%, 10% and 30% and three successive discounts of 40%, 5% and 5%, By choosing the better one, he can save:  
A. 200                                      **B.255**                                      C.400                                      D.433

14. A shopkeeper earns a profit of 12% on selling a book at 10% discount on the printed price. The ratio of the cost price and the printed price is:  
**A. 45:56** B.50:61 C.99:125 D. 20:40
15. A dealer marks his goods 20% above cost price. He then allows some discount on it and makes a profit of 8%. The rate of discount is:  
 A. 12% **B.10%** C.6% D.4%
16. A trader's marked price is 30% above cost price. He allows his customers 10% discount on the marked price. What profit does he make?  
 A. 16% **B.17%** C.18% D.19%
17. A trader marked his goods at 20% above cost price. He sold half the stock at the marked price, one quarter at a discount of 20% on the marked price and the rest at a discount of 40% on the marked price. His gain percent is:  
**A. 2%** B.4.5% C.13.5% D.15%
18. The difference between a discount of 35% and two successive discounts of 20% and 20% on a certain bill was Rs.22. The amount of the bill is:  
 A. 200 B.1100 **C.2200** D.2500
19. A wholesaler sells 20 pens at the marked price of 16 pens to a retailer. The retailer in turn sells them at the marked price. The gain percent to the retailer is:  
 A. 20% **B.25%** C.30% D.35%
20. A shopkeeper sold a TV set for Rs.17940 with a discount of 8% and earned a profit of 19.6%. What would have been the percentage of profit earned if no discount was offered?  
 A. 24.8% B.25% C.26.4% **D. None of these**

### Further exercise-----02

1. A man sold an article at a loss of 20%. If he sells the article for Rs.12 more, he would have gained 10%. The cost price of the article is:  
 A. Rs. 60 B.Rs. **40** **C.Rs. 30** D.Rs.22
2. By Selling 36 oranges, a vendor loses the selling price of 4 oranges. His loss percent is:  
 A. 12.5% B.11% **C.10%** D.15%
3. By selling a tape-recorder for Rs.950, I lose 5%. What percent shall I gain by selling it for Rs.1040?  
 A. **4%** B.4.5% C.5% D.9%
4. A machine was sold at a gain of 10%. Had it been sold at Rs.80 less, the seller would have lost 10%. What is the cost price of the machine?  
 A. Rs. 350 **B.Rs. 400** C.Rs. 450 D.Rs.520
5. A sold a watch to B at 20% gain and B sold it to C at a loss of 10%. If C bought the watch for Rs.216, at what price did A purchase it?  
 A. **Rs. 200** **B.Rs. 216** C.Rs. 250 D.Rs.176

6. At what price must Kantilal sell a mixture of 80 kg rice at Rs.6.75 per kg with 120 kg at Rs.8 per kg to gain 20%
- A. Rs.7.50/kg                      B.Rs.8.20/kg                      C.Rs.8.85/kg                      **D.Rs.9/kg**
7. The ratio of cost price and selling price of an article is 20:21, What is the profit percent on it?
- A. 5%**                      B.5.5%                      C.6%                      D.6.25%
8. A sofa set carrying a sale price ticket of Rs. 5,000 is sold at a discount of 4%, thereby gaining 20%. The trader's cost price of the sofa set is:
- A. Rs. 3600                      B.Rs. 3800                      C.Rs. **4000**                      **D.Rs.4200**
9. A pen is listed for Rs.12. A discount of 15% is given on it. A second discount is given bringing the price down to Rs.8.16. The rate of second discount is:
- A. 15%                      B.18%                      **C.20%**                      D.25%
10. Amit sold an umbrella for Rs.680, losing 15%. The cost price of the umbrella is:
- A. Rs. 782                      **B.Rs. 800**                      **C.Rs. 578**                      D.Rs.1000
11. Mohan bought 20 dining tables for Rs. 12,000 and sold them at a profit equal to the selling price of 4 dining tables. The selling price of each dining table is:
- A. Rs. 700                      B.Rs. **750**                      **C.Rs. 725**                      D.Rs.775
12. A shopkeeper offers his customers 10% discount and still makes a profit of 26%. What is the actual cost of an article for him, marked Rs.280?
- A. Rs. 175                      B.Rs. **200**                      **C.Rs. 215**                      D.Rs.225
13. A company offers three types of successive discounts.
- 1<sup>st</sup>: 25% and 15%
- 2<sup>nd</sup>: 30% and 10%
- 3<sup>rd</sup>: 35% and 5%
- Which offer is better for a customer?
- A. 1<sup>st</sup>                      B.2<sup>nd</sup>                      **C.3<sup>rd</sup>**                      D. All are equal
14. A retailer buys a sewing machine at a discount of 15% and sells it for Rs. 1955. Thus, he makes a profit of 15%. The discount is:
- A. Rs. 270                      B.Rs. 290                      C.Rs. **300**                      **D.Rs.500**
15. On reducing the marked price of an article by Rs.32, a shopkeeper gains 15%. If the cost price of the article be Rs.320 and it is sold at the marked price, what will be the gain percent?
- A. 10%                      B.20%                      **C.25%**                      D.50%
16. The price of an article is raised by 30% and then two successive discounts of 10% each are allowed. Ultimately, the price of the article is:
- A. Decreases 3%                      B. Decreases 5.3%                      **C. Increases 5.3%**                      D. Increases 10%
17. A trader marked the price of his commodity so as to include a profit of 25%. He allowed a discount of 16% on the marked price. His actual profit was:
- A. 5%**                      B.9%                      C.16%                      D.25%

18. A trader marked the selling price of an article at 10% above the cost price. At the time of selling, he allows certain discount and suffers a loss of 1%. The discount allowed is:  
 A. 9%                                      **B.10%**                                      C.10.5%                                      D.11%
19. Be selling a table for Rs.350 instead of Rs.400, loss percent increased by 5%. The cost price of the table is:  
 A. Rs. 435                                      B.Rs.417. 50                                      C.Rs.**1000**                                      D.1050
20. A dairyman buys milk at Rs.6.40 per liter. He adds water and sells the mixture at Rs.8 per liter, thereby making 37.5% profit. The proportion of water to milk received by the customer is:  
 A. **1:10**                                      B.1:12                                      C.1:15                                      D.1:20

### Further exercise-----03

1. On selling an article for Rs.48, one loses 20%. In order to gain 20%, what would be the selling price?  
 A. Rs. 52                                      B.Rs. 56                                      C.Rs. 68                                      **D.Rs.72**
2. A person sells an article for Rs.75 and gains as much percent as the cost price of the article in rupees. The cost price of the article is:  
 A. Rs.37. 50                                      B.Rs. 40                                      C.Rs. **50**                                      **D.Rs.150**
3. On selling an article for Rs.19.50, a man gains 30%. In order to gain 40%, what will be the increase in its selling price?  
 A. Rs.1. 95                                      B.Rs.1. 75                                      C.Rs.**1. 50**                                      **D.Rs.2.00**
4. A merchant has 1000 kg of sugar, part of which he sells at 8% profit and the rest at 18% profit. He gains 14% on the whole. The quantity sold at 18% profit is:  
 A. 560 kg                                      **B.600 kg**                                      C.400 kg                                      D.640 kg
5. If the manufacturer gains 10%, the wholesale dealer 15% and the retailer 25%, then the cost of production of an article whose retail price is Rs.1265, is:  
 A. Rs.632. 50                                      **B.Rs. 800**                                      C.Rs. 814                                      D.Rs.834.34
6. By using a false weight, a dealer defrauds his customers by 5% in purchasing and by 5% in selling. His gain percent is:  
 A. 10%                                      B.2.5%                                      **C.10.25%**                                      D.15%
7. If a watch is sold at Rs.60, there is a loss of 15%. For a profit of 2%, the watch is to be sold at:  
 A. Rs. 70                                      B.Rs. **72**                                      **C.Rs. 75**                                      D.Rs.85
8. A shopkeeper claims to sell his articles at a discount of 10%, but marks his articles by increasing the cost of each by 20%. His gain percent is:  
 A. 6%                                      B.8%                                      C.10%                                      **D.12%**
9. A dealer buys an article marked at Rs. 25,000 with 20% and 5%. He spends Rs. 1000 on its repairs and sells it for Rs. 25,000. What is his gain or loss percent?  
 A. Loss of 25%                                      **B. Gain of 25%**                                      C. Gain of 10%                                      D.Loss of 10%

10. If a man were to sell his chair for Rs.720, he would lose 25%. To gain 25%, he should sell it for:  
A. **Rs. 1200**                      B.**Rs.** 1000                      C.Rs. 960                      D.Rs.900
11. By selling 100 pencils, a shopkeeper gains the selling price of 20 pencils. His gain percent is:  
A. **10%**                      B.20%                      C.15%                      D.12%
12. A seller allows a discount of 5% on a watch. If he allows a discount of 7%, he earns Rs.15 less in the profit. What is the marked price?  
A. Rs.697. 50                      B.Rs.712. 50                      C.**Rs. 750**                      D.**Rs.**817.50
13. An article is listed at Rs.900 and two successive discounts of 8% and 8% are given on it. How much would the seller gain or lose, if he gives a single discount of 16%, instead of two discounts?  
A. Gain, Rs.4.76                      B. **Loss, Rs.5. 76**                      C. **Gain,** Rs5.76                      D. Loss, Rs.4.76
14. The marked price of a radio is Rs.1920. The shopkeeper allows a discount of 10% and gains 8%. If no discount is allowed, his gain percent would be:  
A. 18%                      B.**20%**                      C.18.5%                      D.20.5%
15. On allowing a discount of 10% on its marked price the value of a watch is Rs.1080. If no discount is allowed, the shopkeeper gains 20%. What is the marked price of the watch?  
**A. Rs. 1000**                      B.**Rs.** 1200                      C.Rs.1296                      D. 1300
16. A tradesman gives 4% discount on the marked price and gives 1 article free for buying every 15 articles and thus gains 35%. The marked price is increased above the cost price by:  
A. 20%                      B.39%                      C.40%                      D.**50%**
17. What price should a shopkeeper mark on an article costing him Rs.153 to gain 20%, after allowing a discount of 15% ?  
A. Rs. 162                      B.Rs. 184                      C.**Rs. 216**                      D.**Rs.**224
18. A retailer allows a trade discount of 20% on the cost. By how much above the cost should the product be labelled for sale to gain 28%  
A. 40%                      B.50%                      C.**60%**                      D.70%
19. Mukesh purchased 40 kg of wheat at Rs.12.50 per kg and 25 kg of wheat at Rs.15.10 per kg. He mixed the two qualities of wheat for selling. At what rate should it be sold to fain 10%  
A. 13.25                      B.Rs.13. 50                      C.Rs.14. 75                      D.**Rs.14.85**
20. A fruit seller mixes three varieties of walnuts costing Rs.50, Rs.20 and Rs.30 per kg in the ratio 2:4:3 in terms of weight and sells the mixture at Rs.33 per kg. What percentage of profit does he make?  
A. 8%                      B.9%                      C.**10%**                      D.11%



## Further exercise-----04

1. A man sold two pipes at Rs.12 each. On one he gained 20% and on the other lost 20%.  
On the whole, he:  
A. No loss no gain                      B. Gained Rs.1                      **C. Lost Rs.1**                      D. Gained Rs.2
2. The cost price of two dozen bananas is Rs.32. After selling 18 bananas at Rs.12 per dozen, the shopkeeper reduced the rate as Rs.4 per dozen. The lost percent is:  
A. 25.2%                      B.32.4%                      C.36.5%                      **D.37.5%**
3. On selling an article at a certain price, a man gains 10%. On selling the same article at double the price, gain percent is:  
A. 20%                      B.100%                      **C.120%**                      D.140%
4. A shopkeeper sells a pair of sunglasses at a profit of 25%. If he had bought it at 25% less and sold it for Rs.10 less, then he would have gained 40%. The cost price of the pair of sunglasses is:  
A. Rs. 25                      B.Rs. 50                      **C.Rs. 60**                      D.Rs.75
5. A man sold two steel chairs for Rs.500 each. On one, he gains 20% and on the other, he loses 12%. How much does he gain or lose in the whole transaction?  
**A. 1.5% gain**                      B.2% gain                      C.1.5% loss                      D.2% loss
6. Mr. Chatterjee bought a car at 15% discount on original cost. He then sold it with 20% profit on its purchase price. What percentage profit did he make on the original price?  
**A. 2%**                      B.5%                      C.12%                      D.17%
7. On selling an article at Rs.1060, the gain is 20% more than the loss incurred on selling it at Rs.950. In order to gain 20%, the selling price will be:  
A. Rs. 980                      B.Rs. 1080                      C.Rs.1800                      **D. None of these**
8. A dealer offers a discount of 10% on the marked price of an article and still makes a profit of 20%. If its marked price Rs.800, then the cost price is:  
**A. Rs. 600**                      **B.Rs. 700**                      C.Rs. 800                      D.Rs.900
9. Successive discount of 10% and 20% are equivalent to a single discount of:  
A. 15%                      **B.28%**                      C.30%                      D. None of these
10. A man sells his typewriter at 5% loss. If he sells it for Rs.80 more, he gains 5%. The cost price of the typewriter is:  
A. Rs. 1600                      B.Rs. 1200                      C.Rs. 1000                      **D.Rs.800**
11. Ravi buys some toffees at 2 for a rupee and sells them at 5 for a rupee. His loss percent is:  
A. 120%                      B.90%                      C.30%                      **D.60%**
12. A shopkeeper sold an air-conditioner for Rs.25935 with a discount of 9% and earned a profit of 3.74%. What would have been the percentage of profit earned if no discount were offered?  
A. 12.3%                      B.15.6%                      C.16%                      **D. None of these**



3. A man sells an article at 12.5% loss. Had he sold it for Rs.103.60 more, he could have gained 6%. What is the C.P of the article?  
 A. Rs.278. 60                      B.Rs. 350                      C.Rs. 432                      D.Rs.**560**
4. A trader buys some goods for Rs.150, If the overhead expenses be 12% of cost price, then at what price should it be sold to earn 10%?  
 A. **Rs.184. 80**                      B.Rs.185. 80                      C.Rs.187. 80                      D.Rs.188.80
5. The total cost price of two watches is Rs.840. One is sold at profit of 16% and the other at a loss of 12%. There is no loss or gain in the whole transaction. The cost price of the watch on which the shopkeeper gains, is:  
 A. **Rs. 360**                      B.Rs. 370                      C.Rs. 380                      D.Rs.390
6. Two-thirds of a consignment was sold at a profit of 60% and at a loss of 3%. If there was an overall profit of Rs.540, the value of the consignment was:  
 A. Rs. 15,000                      B.Rs. 16,000                      **C.Rs. 18,000**                      D.20,000
7. Due to 25% fall in the rate of eggs, one can buy 2 dozen eggs more than before by investing Rs.162. What was the original rate per dozen?  
 A. Rs. 22                      B.Rs. 24                      **C.Rs. 27**                      D.Rs.30
8. The marked price of shirt and trousers are in the ratio 1:2. The shopkeeper gives 40% discount on the shirt. If the total discount on both is 30%, the discount offered on the trousers is:  
 A. 15%                      B.20%                      **C.25%**                      D.30%
9. A single discount equivalent to successive discounts of 30%,20% and 10% is:  
 A. 50%                      B.51%                      C.49.4%                      **D.49.6%**
10. Ram bought 1600 eggs at Rs.3.75 per dozen. He sold 900 of them at 2 for Rs.1 and the remaining at 5 for Rs.2. His gain percent is:  
 A. 40%                      B.45%                      C.42%                      **D.46%**
11. A fruit seller buys lemons at 2 for a rupee and sells them at 5 for 3 rupees. His gain percent is:  
 A. 10%                      B.15%                      **C.20%**                      D.25%
12. The marked price of an electric Iron is Rs.690. The shopkeeper allows a discount of 10% and gains 8%. If no discount is allowed, his gain percent would be:  
 A. **20%**                      B.24%                      C.25%                      D.28%
13. A fan is listed at Rs.1500 and a discount of 20% is offered on the list price. What additional discount must be offered to the customer to bring the net price to Rs.1104?  
 A. **8%**                      B.10%                      C.12%                      D.15%
14. The marked price of an article is 10% more than the cost price and a discount of 10% is given on the marked price. In this kind of Sale, the seller:  
 A. No loss or gain                      B. gains 1%                      **C. losses 1%**                      D. gains 5%

15. A shopkeeper sells his goods at 10% discount on the marked price. What price should he mark on an article that cost him Rs.900 to gain 10%
- A. **Rs. 1100**                      B.Rs. 1175                      C.Rs. 1250                      D.Rs.1275
16. The cost price of an article is 64% of the marked price. What is the gain percent if a discount of 12% is allowed?
- A. **37.5%**                      B.48%                      C.50.5%                      D.52%
17. A shopkeeper allows a discount of 10% on the marked price of an item but charges a sales tax of 8% on the discounted price. If the customer pays Rs.680.40 as the price including the Sales tax, then what is the marked price of the item?
- A. Rs. 630                      **B.Rs. 700**                      C.Rs.780                      D.800
18. A merchant purchase a wrist for Rs.450 and fixes the list price in such a way that after allowing a discount of 10% he earns a profit of 20%, the list price of the watch is:
- A. Rs. 500                      B.Rs. **600**                      C.Rs. 700                      D.Rs.750
19. A shopkeeper bought pens at the rate of 8 pens for Rs.34 and sold them at 12 pens for Rs.57. The number of pens, that he should sell to have a profit of Rs.900, must be:
- A. 1400                      B.1600                      **C.1800**                      D.200
20. A man buys an article for 10% less than its value and sells it for 10% more than its value. His gain or loss percent is:
- A. No loss or profit                      **B. Over 20% gain.**                      C. less than 20% gain                      D. 20% gain

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